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ABSTRACT

Transactional dialogues and concomitance in syntactic and aesthetic ordering were studied in 32 deaf students during 12 weeks of art classes meeting three days a week for periods of 1 hour each. The dialogues were said to have accomplished a gradual take over of mind-to-mind communication in lieu of both authority and childing. Findings indicated that the five judges evaluating the students' art products made judgments highly correlated with each other as reported on the significant correlation matrix. A second finding was that both correlational analysis and analysis of variance showed significant relationships between art quality improvement and changes toward complexity in figure preference with positive changes in development of syntax as measured by the Stanford Achievement Test scales for word meaning, paragraph meaning, and arithmetic computation skills. The third finding was that a correlation existed in some instances among scores on the Welsh Figure Preference Test art scale and low scores on art product judgments. (CB)

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Transactional Dialogues and Concomitance In Syntactic and Aesthetic Ordering: A Report of Studies with Deaf Subjects

William Bradley

The Pennsylvania State University

Paper read at the National

Art Education Association Convention

in Dallas, Texas, April, 1971

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Note: Some of the first few pages of this report are taken directly from an article which I co-authored entitled, "Some Correlational Aspects of Performance On The Art Scale Of The WFPT Among Certain Variables In A Deaf Population," Journal of Experimental Education. (Vol. 39, Number 1, Fall, 1970.)

The paradigm upon which this correlational study was based is related to the way in which humans appear to organize syntax (including word meaning and paragraph meaning), and other inarticulate systems. Based on previous research by the author, there are some indicators which seem to suggest a complicated interconnection between these various ordering functions of the mind. The process of verbalization--that is the search for word-phase counterparts to experience--appears to be related to the inarticulate ordering systems as an assimilating activity which seeks out the appropriate order and intent from among the possibilities available. The study of this process during the precommittal stages of ordering may provide a fruitful path into the study of the systems themselves and their illusive interconnections. In art, it is as though the act of manipulating pre-conscious alternatives increases the flexibility of the subject permitting him to perceive greater figural possibilities in the more ambiguous drawings. Just what this relationship is defies current analysis, but the data seems to indicate that both variables--verbal activity and figure preference--are dependent upon each other. It is known that the process of verbalization does indeed influence aesthetic behavior both in the act of art itself and in the subject's preference for figural stimuli. But whether or not the pre-conscious strategies which come into play before a syntactic commitment is made are similar to the pre-conscious strategies involved in aesthetic ordering is not known. Nor is it known whether the

stimulating of such pre-conscious strategies in one ordering system has a concomitant influence on the other systems.

Our working model suggests that such a concomitance might exist and that when subjects are permitted to verbalize about their own strategies they literally expand their time of pre-committal manipulation of alternatives. It is just this flexibility which may affect the quality of all inarticulate products. The indicators received from three previous studies suggest that this is apparently the sequence. In one study with hearing subjects there was a strong indication that such intrinsic verbal feedback had a positive influence on art production quality. A second experimental study suggested a similar relationship between the verbal feedback condition and figure preference although personality factors were involved in changes reported in the second study (3). The third study was a correlational study carried out with deaf subjects which appeared to corroborate the first two (4).

This paradigm is related to two basic observations about the non-verbal expression of experience.

First, in the essentially less-verbal world of the deaf rests, perhaps, some of the illusive answers to the "how" questions in learning. For if learning is to take place at all among deaf subjects, it must be pedagogically correct. The subtle and unknown methods by which hearing subjects learn can slip by the most conscientious researcher while he incorrectly assumes that what he is controlling in his experiments is responsible for the observed change. But the margin of error appears to be substantially reduced for the study of the less-verbal learner. If classroom pedagogy is inadequate in the hearing classroom, learning still

seems to take place. But, if classroom pedagogy is inadequate in the non-verbal classroom, learning simply does not occur at an appreciable rate.

A second point: the apparent relationship of the inarticulate nature of deaf learning to the inarticulate ordering function of the plastic arts, suggests that once we know the extent of this interaction, we may be in a position to discuss the larger questions of how aesthetic ordering relates to word meaning, concepts, syntax development and reading achievement. The benefits of such information appear obvious.

The aesthetic ordering function appears to be related to one of the earliest and perhaps most pregnant stages of the intellection process. For it is here that the greatest flexibility in the interpretation of experience can occur. Flexibility has been regularly cited as a quality or at least a primary influence on creative behavior (6,7,9,10). One of the distinctions between the artist and the non-artist isolated by empirical scales has been this same characteristic (7,10).

The work of Anton Ehrenzweig (5) related to the development of articulation suggests that the automatic assembly of visual and aural impulses from direct experience can be--indeed in art schools is--taught by eliminating the gestalt figural tendency through conscious effort toward flexible behavior. The art student is trained to reconsider--all at the inarticulate level--the numerous possibilities for his particular form metaphor.

One method by which this refinement is accomplished appears to be associated with verbal behavior. Once again the empirical cues suggest that the most verbal students or at least those who score higher on verbal scales of intelligence also see more possibilities in partially

articulated drawings or drawings which are not clearly defined or regular. In addition to this interconnection, it is becoming increasingly clear that planned verbal involvement in the art classroom has a positive influence on aesthetic growth (1,2,3,4). Indeed some language researchers suspect that the word, itself, (both inarticulate and articulate) as a symbolic device enables humans to categorize and synthesize real experience by permitting an abstract bridge between the rational and the irrational. The word as a symbolic function may be a closer relative to the aesthetic ordering processes than had been previously supposed. Luria suggested that the word did indeed serve such a function over and above its more obvious role of indicating objects (8).

The results of the correlational analysis reported in the Journal of Experimental Education seemed to corroborate earlier findings as reported by the author in two different issues of Studies In Art Education where the relationship of both art production quality and preference for complex figures appeared to coincide with syntactic development. In all cases the attempt to expand pre-committal time for students appeared to have a positive influence on development in all of these ordering systems.

For the study herein reported a random sample of 32 students was selected of 4 sub groups or strata. The subdivision upon which this stratified sampling was obtained had been longstanding in the population of 92 high school age deaf students at the Pennsylvania School for the Deaf and was predicated upon performance tests, psychological set and the ability to communicate. For example, members of the "low" verbal group

characteristically had a meaningful vocabulary between 10 and 25 words. Age, sex, degree of deafness and similar variables were not part of the criteria for classification. Class sizes varied from 10 to 15 students so our random sampling was buttressed by heaving sampling as well.

The experiment ran for a period of twelve weeks during the early part of 1970 (January into April) with art classes held three days per week for periods of one hour.

The motivations were video-taped and directed toward drawing activities. Every attempt was made to eliminate extraneous influences on the students by pre-recording each of the sessions on the video-tape. Students were then instructed by watching the playback and then beginning the drawing session. In this way, variations in instructor interpretations were eliminated.

To do this, a legal interpreter for the deaf was hired to accompany and translate while the author presented the lesson to the television camera. A total of 12 presentations were recorded dealing with specific facets of the drawing problem i.e.: line, value, cross-hatching, gesture, etc.

The instructors for the classes received training in the handling of the peer to peer transactional dialogues and they, in turn, instructed the students in this particular technique. Transactional dialogues were characterized by the personal talk of the maker of the drawing, (artist--although I believe artist as a word is used catachrestically in these cases) with a specific peer partner input. As an example, one of the dialogues went as follows:

(free translations from the interpreter)

Maker: "I am going to fill this up." (Pointing to an empty space in the upper right hand section of the paper.)

Peer: "How do you do that"? (Mind↔Mind transaction)

Maker: "Like he (instructor) wants." (This statement is a child↔ authority statement requiring a redirection input from the peer.)

Peer: "He is not going to grade you." (This response is not redirective but simply complements the maker's statement and is also a child authority statement.)

Maker: "That's what <u>you</u> say, but he will." (Child↔authority--there is still no awareness of personal responsibility toward his work.)

Peer: "What would you like to do?" (Mind↔Mind transaction which is redirective and requiring a response different from the child↔ authority base.)

Maker: "It doesn't matter. I can't draw anyway." (A child↔child transaction which requires redirection.)

Peer: "Most of us are in the same boat. You can do as well as me." (This is a mind↔mind statement which appeals to thinking and responsibility by attending to a child need while redirecting the transactional dialogue.)

What these dialogues accomplished is a gradual take over of mind↔mind transactions in lieu of both <u>authority</u> (which was very strongly implanted in these adolescents) and <u>childing</u> (which is a kind of reciprocal necessity when authority looms large). What was hoped to be gained by this treatment was a responsible atmosphere where students were literally <u>minding their own business</u>.

All students received training in the transactional dialogue technique and the conduct of the peer to peer interactions. It should be stated here, however, that this particular methodology for operating an art classroom was not under investigation in the analysis herein reported. A great deal was learned about the transactional technique during the

course of twelve weeks and current plans are to empirically define and test the parameters of it. To satisfactorily accomplish this the author, a psychologist and a psychotherapist are taking conceptual steps toward the articulation of this process. But for the study defined here, transactional dialogues were introduced as an integral part of the art process to all of the subjects involved.

The attached data is herewith objectively presented along with a summary statement of results at the end.

But as a general summary one might be able to say that on the basis of this empirical study there appears to be concomitance in development across the ordering systems here defined as, word meaning, paragraph meaning, arithmetic computation, figure preferences and art quality.

The following readout sheet is not reporting correlation coefficients but is instead reporting the results of hypothesis testing as a result of the correlational analysis. Therefore significance can be read as any number which is 0.01 or less. The variables which are abbreviated with J_n, A-D represent judge ratings. As an example, J_4C means the third (3rd) activity as judged by judge number 4. SAWM, SAPM and SAAC are measures from the Stanford Achievement Test.

The asterisks serve the same function as on the correlation matrix reported on page 9, i.e.: correlational significance between judges.

The negative percentages are due to the fact that a stanine distribution was used for judging (1 means high; 9 means low).

In some instances a correlation existed between scores on the WFPT art scale and the low scores on art products (signifying high quality) but this apparently was more true for the post-test than it was for the pre-test. Why such a discrepancy exists is unclear. For example, the correlation on the post-test of the art scale with the judgments of quality made by judge 2 was apparently nonexistent during the pre-test. It is as though the judges themselves were being trained toward a particular aesthetic.

TABLE 1

		Deafness 1	Sex 2	J_1A 3	J_1B 4	J_1C 5	J_1D 6	J_2A 7	J_2B 8	J_2C 9	J_2D 10
SEX	2	-0.002									
J_1A	3	0.013	-0.353								
J_1B	4	0.043	-0.916	0.000							
J_1C	5	0.293	0.689	0.000	0.000						
J_1D	6	-0.033	0.000	0.357	0.086	0.001					
J_2A	7	0.088	0.863	*0.000	0.000	0.000	0.009				
J_2B	8	0.217	-0.991	0.000	*0.000	0.000	0.022	0.000			
J_2C	9	0.203	-0.612	0.000	0.000	*0.000	0.044	0.000	0.000		
J_2D	10	-0.027	0.020	0.075	0.076	0.001	*0.000	0.007	0.004	0.004	
J_3A	11	0.034	-0.396	*0.000	0.000	0.000	0.177	0.000	0.000	0.000	0.043
J_3B	12	0.826	0.400	0.000	*0.000	0.000	0.001	0.000	0.000	0.000	0.000
J_3C	13	0.101	-0.966	0.000	0.000	*0.000	0.057	0.000	0.000	0.000	0.008
J_3D	14	-0.470	0.024	0.182	0.043	0.000	*0.000	0.006	0.061	0.011	0.000
J_4A	15	-0.767	0.145	*0.004	0.007	0.003	0.002	0.000	0.001	0.001	0.000
J_4B	16	0.270	-0.792	0.000	*0.000	0.000	0.004	0.000	0.000	0.000	0.002
J_4C	17	0.325	0.478	0.000	0.000	*0.000	0.000	0.000	0.000	0.000	0.003
J_4D	18	-0.022	0.001	0.637	0.373	0.014	*0.000	0.068	0.242	0.202	0.000
J_5A	19	0.781	0.718	*0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.001
J_5B	20	0.464	0.830	0.000	*0.000	0.000	0.002	0.000	0.000	0.000	0.002
J_5C	21	0.503	0.230	0.000	0.000	*0.000	0.001	0.000	0.000	0.000	0.008
J_5D	22	0.476	0.797	0.000	0.000	0.000	*0.004	0.000	0.000	0.000	0.007
Pre Art Scale	23	-0.001	0.000	-0.000	-0.115	-0.157	0.019	-0.208	-0.056	-0.116	0.448
Pre SAWM	24	-0.016	0.025	-0.013	-0.635	-0.325	0.234	-0.409	-0.381	-0.378	0.676
Pre SAPM	25	-0.000	0.003	-0.000	-0.014	-0.049	0.061	-0.029	-0.047	-0.034	0.178
Pre SAAC	26	-0.344	0.334	-0.056	0.968	-0.589	0.870	-0.961	-0.713	-0.864	-0.789
Post Art Scale	27	-0.001	0.003	-0.000	-0.003	-0.011	0.152	-0.007	-0.001	-0.006	0.929
Post SAWM	28	-0.077	0.681	-0.008	-0.068	-0.023	-0.772	-0.056	-0.031	-0.134	-0.755
Post SAPM	29	-0.000	0.113	-0.000	-0.003	-0.008	0.645	-0.002	-0.012	-0.010	0.552
Post SAAC	30	-0.320	0.585	-0.092	-0.812	-0.415	-0.932	-0.958	-0.512	-0.948	-0.933

TABLE 1 (continued)

		J_3A	J_3B	J_3C	J_3D	J_4A	J_4B	J_4C	J_4D	J_5A	J_5B
		11	12	13	14	15	16	17	18	19	20
J_3B	12	0.000									
J_3C	13	0.000	0.000								
J_3D	14	0.052	0.001	0.004							
J_4A	15	0.003	0.001	0.002	0.000						
J_4B	16	0.000	0.000	0.000	0.001	0.000					
J_4C	17	0.000	0.000	0.000	0.000	0.002	0.000				
J_4D	18	0.566	0.014	0.162	0.000	0.001	0.005	0.002			
J_5A	19	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000		
J_5B	20	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
J_5C	21	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000
J_5D	22	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.008	0.000	0.000
Art Scale	23	-0.011	-0.629	-0.079	0.265	-0.863	-0.241	-0.382	0.012	-0.693	-0.801
Pre SAWN	24	-0.265	-0.842	-0.551	-0.695	-0.482	-0.206	-0.413	0.576	-0.187	-0.433
Pre SAPM	25	-0.002	-0.274	-0.016	0.620	1.000	-0.099	-0.209	0.043	-0.327	-0.371
Pre SAAC	26	-0.971	-0.621	0.809	-0.461	-0.733	-0.193	-0.790	-0.556	-0.257	-0.325
Art Scale	27	-0.000	-0.077	-0.002	0.812	-0.220	-0.019	-0.037	0.071	-0.099	-0.168
Post SAWM	28	-0.014	-0.071	-0.039	0.951	0.940	-0.233	-0.550	0.652	-0.656	-0.796
Post SAPM	29	-0.000	-0.074	-0.003	-0.708	-0.476	-0.009	-0.049	0.368	-0.071	-0.106
Post SAAC	30	-0.800	-0.464	0.967	0.827	0.419	-0.538	0.709	-0.903	-0.967	-0.854

TABLE 1 (continued)

	J_5C	J_5D	Art Scale	SAWM	SAPM	SAAC	Art Scale	SAWM	SAPM	SAAC
	21	22	23	24	25	26	27	28	29	30

	J_5D	22	0.000								
Pre	Art Scale	23	-0.792	-0.378							
Pre	SAWM	24	-0.414	-0.575	0.000						
Pre	SAPM	25	-0.306	-0.102	0.000	0.000					
Pre	SAAC	26	-0.453	-0.540	0.019	0.000	0.019				
Post	Art Scale	27	-0.116	-0.040	0.000	0.000	0.000	0.080			
Post	SAWM	28	-0.869	-0.255	0.002	0.035	0.000	0.226	0.001		
Post	SAPM	29	-0.060	-0.018	0.000	0.000	0.000	0.037	0.000	0.000	
Post	SAAC	30	0.820	-0.589	0.020	0.015	0.011	0.000	0.134	0.000	0.015

Correlation Coefficients

The boxed area on the following page represents correlations among the judgments made by judges 1 and 2. Reading in the matrix one can determine the consistency with which this judge approached his decisions. For example, the judgments made by this judge seem less and less consistent as the experiment progressed. This inconsistency is explainable only in terms of the activities since the judges were unaware of which of the classes the products came from. Apparently the activities themselves became more ambiguous and more difficult to judge. (All of the judges were consistently inconsistent on the last project.)

The asterisks are placed in front of particular correlations to help identify how the first judgments of judge 1, for instance, correlated with the first judgments of the rest of the judges. The same procedure is used in columns 4, 5 and 6 (in column 6 we are viewing the correlations between judgments of the last art activity).

On the following pages the within judge correlations for judges 3, 4 and 5 are blocked into the readout.

TABLE 2

		Deafness	Sex	J_1A	J_1B	J_1C	J_1D	J_2A	J_2B	J_2C	J_2D
		1	2	3	4	5	6	7	8	9	10
SEX	2	-0.5229									
J_1A	3	0.4331	-0.1696	Judge 1							
J_1B	4	0.3603	-0.0193	0.8184							
J_1C	5	0.1917	0.0735	0.7052	0.7854						
J_1D	6	-0.3786	0.7033	0.1683	0.3084	0.5490					
J_2A	7	0.3064	0.0317	*0.8367	0.8831	0.8024	0.4539	Judge 2			
J_2B	8	0.2243	-0.0022	0.8035	*0.8145	0.7786	0.4049	0.8363			
J_2C	9	0.2315	-0.0931	0.7352	0.7783	*0.7777	0.3582	0.8510	0.8015		
J_2D	10	-0.3906	0.4098	0.3190	0.3178	0.5786	*0.7582	0.4710	0.4998	0.4981	
J_3A	11	0.3772	-0.1553	*0.8512	0.8633	0.8110	0.2447	0.8643	0.8411	0.8593	0.3604
J_3B	12	0.0404	0.1541	0.7016	*0.8115	0.8503	0.5565	0.8215	0.8105	0.7820	0.6050
J_3C	13	0.2955	-0.0079	0.7061	0.8150	*0.8242	0.3606	0.7848	0.7100	0.8259	0.4644
J_3D	14	-0.1323	0.3980	0.2419	0.3601	0.6103	*0.7779	0.4794	0.3356	0.4450	0.7090
J_4A	15	-0.0546	0.2633	*0.4915	0.4717	0.5167	0.5389	0.6017	0.5520	0.5556	0.6366
J_4B	16	0.2010	-0.0485	0.7503	*0.6691	0.7308	0.4062	0.8717	0.7143	0.7731	0.5279
J_4C	17	0.1798	0.1302	0.6063	0.6977	*0.7889	0.5916	0.7084	0.6664	0.6980	0.5114
J_4D	18	-0.4038	0.5808	0.0867	0.1629	0.4294	*0.8853	0.3266	0.2130	0.2318	0.7222
J_5A	19	0.0510	0.0665	*0.6480	0.5738	0.6071	0.5456	0.7909	0.5907	0.6475	0.5630
J_5B	20	0.1341	0.0396	0.6220	*0.6799	0.6843	0.5371	0.8098	0.6503	0.6689	0.5308
J_5C	21	0.1229	0.2184	0.6201	0.7246	*0.6629	0.5551	0.7658	0.6116	0.6155	0.4633
J_5D	22	0.1307	0.0473	0.7135	0.8008	0.7297	*0.4972	0.8412	0.7213	0.7717	0.4721
Art Scale	23	-0.5703	0.5962	-0.6014	-0.2840	-0.2565	0.4135	-0.2290	-0.3418	-0.2838	0.1389
Pre SAWM	24	-0.4240	0.3972	-0.4332	-0.0873	-0.1796	0.2164	-0.1511	-0.1603	-0.1612	0.0768
SAPM	25	-0.7291	0.5118	-0.6446	-0.4320	-0.3506	0.3355	-0.3861	-0.3535	-0.3769	0.2444
SAAC	26	-0.1728	0.1766	-0.3421	0.0074	-0.0992	0.0302	-0.0089	-0.0676	-0.0314	-0.0492
Art Scale	27	-0.5843	0.5113	-0.7617	-0.5130	-0.4465	0.2591	-0.4720	-0.5474	-0.4789	0.0163
Post SAWM	28	-0.3170	0.0757	-0.4587	-0.3266	-0.4010	-0.0532	-0.3413	-0.3820	-0.2707	-0.0574
SAPM	29	-0.6424	0.2857	-0.7042	-0.5046	-0.4594	0.0846	-0.5317	-0.4415	-0.4507	0.1093
SAAC	30	-0.1814	0.1002	-0.3027	-0.0438	-0.1491	-0.0158	-0.0096	-0.1201	-0.0119	-0.0155

TABLE 2 (continued)

	J_3A 11	J_3B 12	J_3C 13	J_3D 14	J_4A 15	J_4B 16	J_4C 17	J_4D 18
			Judge 3				Judge 4	
J_3B	12	0.8095						
J_3C	13	0.9108	0.8011					
J_3D	14	0.3463	0.5419	0.4964				
J_4A	15	0.5132	0.5821	0.5303	0.6351			
J_4B	16	0.7371	0.7350	0.6704	0.5599	0.6260		
J_4C	17	0.6832	0.6756	0.7095	0.6873	0.5252	0.6827	
J_4D	18	0.1053	0.4300	0.2535	0.8281	0.5709	0.4841	0.5321
J_5A	19	0.5822	0.6511	0.5425	0.6650	0.7085	0.8587	0.6736
J_5B	20	0.6432	0.7593	0.6585	0.6487	0.6632	0.8615	0.7159
J_5C	21	0.6262	0.7332	0.6773	0.6509	0.6876	0.7233	0.7577
J_5D	22	0.7861	0.7894	0.7513	0.5707	0.5991	0.7637	0.7433
Pre Art Scale	23	-0.4462	-0.0887	-0.3148	0.2030	-0.0318	-0.2136	-0.1598
Pre SAWM	24	-0.2030	-0.0367	-0.1094	-0.0721	-0.1289	-0.2296	-0.1500
Pre SAPM	25	-0.5357	-0.1995	-0.4242	0.0910	0.0	-0.2973	-0.2284
Pre SAAC	26	-0.0067	-0.0909	0.0444	-0.1351	-0.0626	-0.2365	-0.0489
Post Art Scale	27	-0.6613	-0.3170	-0.5284	0.0437	-0.2229	-0.4137	-0.3704
Post SAWM	28	-0.4328	-0.3237	-0.3676	0.0114	0.0138	-0.2172	-0.1096
Post SAPM	29	-0.6194	-0.3203	-0.5106	-0.0690	-0.1307	-0.4533	-0.3514
Post SAAC	30	-0.0466	-0.1342	0.0077	0.0402	0.1478	-0.1131	0.0686

	0.6262
	0.5904
	0.5316
	0.4624
	0.4413
	0.1027
	0.3609
	-0.1080
	0.3233
	0.0829
	0.1647
	-0.0224

TABLE 2 (continued)

	J_5A	J_5B	J_5C	J_5D	Art Scale	SAWM
	19	20	21	22	23	24

Judge 5

	J_5B	20	0.8678				
	J_5C	21	0.7864	0.8998			
	J_5D	22	0.8049	0.8706	0.8195		
	Art Scale	23	-0.0725	-0.0463	-0.0485	-0.1611	
Pre	SAWM	24	-0.2393	-0.1435	-0.1496	-0.1030	0.6535
Pre	SAPM	25	-0.1790	-0.1635	-0.1870	-0.2943	0.8466	0.7365
Pre	SAAC	26	-0.2063	-0.1796	-0.1376	-0.1126	0.4123	0.6911
	Art Scale	27	-0.2974	-0.2496	-0.2832	-0.3654	0.9376	0.6212
Post	SAWM	28	-0.0818	-0.0475	-0.0305	-0.2072	0.5379	0.3751
Post	SAPM	29	-0.3240	-0.2915	-0.3359	-0.4178	0.7407	0.6656
Post	SAAC	30	-0.0076	-0.0339	0.0419	-0.0992	0.4109	0.4273

Required F score for between subject significance at the upper 1% level is 4.57 with 3/28 degrees of freedom.

In this case significance was achieved when the source of variance was between subjects. This means that changes observed over classes between subjects were significant.

The required F score for within subject significance at the upper 1% level is 7.64 with 1/28 degrees of freedom.

Within subjects, as a source of variance, produced a significant F score of 16.659. Since this actually is based upon a decimal increase rather than a unit increase one must be careful in ascribing too much significance to it. The increase was actually in a range from a -.4 unit decrease to a 7.5 unit increase. Three of four classes varied little.

Nevertheless it is significant that a different rate of increase was observable between classes over a 12 week experimental period and that such increases seemed to parallel the increases described above.

TABLE 3

WFPT Art Scale

ANALYSIS OF VARIANCE SUMMARY TABLE

Source	Sums of Squares	Mean Squares	Degrees of Freedom	F Ratio
Between Subjects				
A	0.748605D 04	0.249535D 04	3	7.366
Error	0.948494D 04	0.338748D 03	28	
Within Subjects				
J	0.375391D 03	0.375391D 03	1	16.659
AJ	0.121172D 03	0.403906D 02	3	1.792
Error	0.630938D 03	0.225335D 02	28	

Corrected Total Sum of Squares = 0.180985D 05
Uncorrected Total Sum of Squares = 0.866770D 05

A required F score for between subject significance at the upper 1% level with 3/28 degrees of freedom is 4.57.

On this inter class analysis no significant difference was found between classes. This result was perhaps predictable since the reading levels of all of these classes are very low. Still the fact that one of the determinants in identifying class membership is reading ability, one might have expected different results in the paragraph meaning measure between classes.

Changes in paragraph meaning scores were generally about .4 to .6 of a unit over the initial scores. The initial score means were 2.3 to 4.7. Smallest changes were at the same time smallest scores.

The significance level of 22.717 is a very important change since it reflects an actual change in syntactic ability. The significance level required was 7.64.

TABLE 4

STANFORD ACHIEVEMENT TEST (Paragraph Meaning)

ANALYSIS OF VARIANCE SUMMARY TABLE

Source	Sums of Squares	Mean Squares	Degrees of Freedom	F Ratio
Between Subjects				
A	0.546730D 04	0.182243D 04	3	4.062
Error	0.125633D 05	0.448690D 03	28	
Within Subjects				
J	0.425391D 03	0.425391D 03	1	22.717
AJ	0.579688D 01	0.193229D 01	3	0.103
Error	0.524313D 03	0.187254D 02	28	

Corrected Total Sum of Squares = 0.189861D 05
Uncorrected Total Sum of Squares = 0.123073D 06

The required F ratio for significance at the upper 1% level with 3/28 degrees of freedom is 4.57.

There is a significant difference between classes on scores on the Arithmetic Computation measure. This was anticipated. No significant differences could be found as a result of treatment.

TABLE 5

STANDARD ACHIEVEMENT TEST (Arithmetic Computation

ANALYSIS OF VARIANCE SUMMARY TABLE

Source	Sums of Squares	Mean Squares	Degrees of Freedom	F Ratio
Between Subjects				
A	0.865780D 04	0.288593D 04	3	11.626
Error	0.695031D 04	0.248225D 03	28	
Within Subjects				
J	0.135141D 03	0.135141D 03	1	2.193
AJ	0.579688D 01	0.193229D 01	3	0.031
Error	0.172556D 04	0.616272D 02	28	

Corrected Total Sum of Squares = 0.174746D 05
Uncorrected Total Sum of Squares = 0.153359D 06

Summary of Findings

A. The five judges used in this study apparently made judgments which were highly correlated with each other over all art products as reported on the significant correlation matrix (Table 1). The actual correlation coefficients are reported in Table 2. One interesting aspect of these correlations is that all judges appeared to have grown consistently inconsistent toward the end of the twelve week experiment. Such a result must surely have stemmed from the nature of the activities themselves. As students were gradually weaned from authority dependence perhaps the products became weaned from the criteria based on that authority, and perhaps the judges themselves were being trained away from the authority base.

B. Both the correlational analysis (Table 2) and the ANOVR (Tables 3,4,5) indicate significant relationships between improvement in Art quality and changes toward complexity in figure preference with positive changes in the syntactic development as measured by the Stanford Achievement Test scales for word meaning, paragraph meaning and arithmetic computation skills. Variations within the transactional dialogic process should now be explored to determine more specific sources of variance since "art" in this case became a secondary vehicle for exploring the intrinsic feedback inherent in the treatment.

The one-to-one relationship between these ordering systems is not herein established due to the fact that the treatment could have been the responsible agent for any observed relational change.

C. In some instances a correlation existed between scores on the WFPT Art Scale and the low scores on judgments of art products. (Low

scores in these instances means higher quality since a stanine scaling was used; 1 represented high and 9 represented low). But this correlation was most often true for the post-test scores of the WFPT. Why this occurred is unclear. It is as though the judges were being trained toward a particular aesthetic during the course of judging the products.

Some Questions

1. If judgments are made of a group of products, which represent a particular orientation based on particular assignments, do the judges, by participation, empathetically became a part of that aesthetic?

2. Does Transactional Dialogue account for the variance observed or are these organizational factors triggered by using the "making of objects" approach?

3. Would Transactional Dialogue techniques be effective in eliciting quality art production in normal hearing populations?

4. What is the relationship between syntactic development as measured by the Stanford Achievement Test and syntactic development as measured by judgments of word-phrase products?

5. What are some alternative methods by which one may approach the problem of expanding the pre-committal time needed to develop flexible thinking in art?

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